Grand Valley State University
Seymour and Esther Padnos College of Engineering and Computing

Bachelor of Science in Engineering (B.S.E.)

Interdisciplinary Engineering

Renewable Energy Emphasis- Wind Turbine/Alternative Cars Track

MTH 108 Start, 5 Year Plan

Secondary Admission Required

2023 – 2024 Catalog Year

1st Year

Fall		Winter		Spring/Summer	
MTH 108: MTH 110 Stretch – Part 1	3	MTH 109: MTH 110 Stretch – Part 2	3	MTH 124: Precalculus	5
*WRT 150: Strategies in Writing or WRT 120 and WRT 130	4	*EGR 100: Intro to Engineering	1		
General Education	3	BIO 105: Environmental Science	3		
General Education	3	General Education	3		
		General Education	3		
Total	**13**	**Total**	**13**	**Total**	**5**

2nd Year

Fall		Winter		Spring/Summer	
*MTH 201: Calculus 1	4	*MTH 202: Calculus 2	4	*EGR 185: First-Year EGR Design	2
*EGR 111: Intro to EGR Graphics	1	*PHY 230: Physics 1	5		
*EGR 104: Applied Programming 1	2	*EGR 113: Intro to CAD/CAM	1		
CHM 115: Chemistry 1	4	*EGR 108: Applied Programming 2	2		
ECO 210 or 211: Economics	3	*STA 220: Statistical Modeling for EGR	2		
		*EGR 220: EGR Measure & Data	1		
Total	**14**	**Total**	**15**	**Total**	**2**

3rd Year

Fall		Winter		Spring/Summer	
*MTH 203: Calculus 3	4	*MTH 302: Linear Algebra/Diff Eq	4	EGR 290: Engineering Co-op 1	3
*PHY 234 or 231 Physics 2	4-5	*EGR 309: Machine Design 1	3	*EGR 226: Microcontroller Program	3
*EGR 209: Mechanics and Machines	4	*EGR 310: Machine Design 1 Lab	1	*EGR 227: Microcontroller Prog. Lab	1
*EGR 214: Circuit Analysis 1	3	*EGR 250: Materials Science & EGR	3		
*EGR 215: Circuit Analysis 1 Lab	1	*EGR 251: Materials Science & EGR Lab	1		
*EGR 289: EGR Professionalism	1	EGR 312: Dynamics	3		
Total	**17-18**	**Total**	**15**	**Total**	**7**

4th Year ~ Admission Required

Fall		Winter		Spring/Summer	
EGR 360 or IE Track Elec. (See Chart)	3-4	EGR 390: Engineering Co-op 2	3	EGR 362 or IE Track Elec. (See Chart)	3-4
EGR 345 or 346: Dyna. Sys./Mech. Sys.	4	IE Track Elec. (EGR 450 Recommended)	3-4	EGR 365 or IE Track Elec. (See Chart)	3-4
IE Track Elec. (EGR 352 Recommended)	3-4			General Education	3
				General Education	3
Total	**10-12**	**Total**	**6-7**	**Total**	**12-14**

5th Year ~ Admission Required

Fall		Winter		Spring/Summer	
EGR 490: Engineering Co-op 3	3	EGR 485: Senior EGR Project 1	1	EGR 486: Senior EGR Project 2	2
EGR 463: Alt Energy Sys & Appl.	4	EGR 406: Renewable Energy Sys.	3	IE Track Elec. (EGR 405 Recommended)	3-4
		EGR 413: Mater. Energy Storage	3	General Education	3
		IE Track Elec. (EGR 465 Recommended)	3-4		
		GEO 360: Earth Res. Transition	3		
Total	**7**	**Total**	**13 -14**	**Total**	**8-9**

- This is a suggested curriculum guide that might not be applicable to every student
- Foundation courses are required for secondary admission and are designated by an asterisk (*) on this guide
- Student must have a **minimum of 120 credits** to graduate, with **58 of the 120 credits** being from a senior level institution and the **final 30 of the 120 credits** completed at GVSU

Padnos College of Engineering and Computing ~ Student Services Office
B-3-241 Mackinac Hall and 101 Eberhard Center
(616) 331-6025 or online at www.gvsu.edu/pcec/advising

4/18/2023

√	IE-Renewable Energy Foundation Requirements	√	General Education Requirements
	MTH 201		WRT 150: Strategies in Writing (grade of "C" or higher required) **or** WRT 120 and WRT 130 (grade of "C" or higher required in both)
	MTH 202		Life Sciences (BIO 105)
	MTH 203		Physical Sciences (CHM 115)
	MTH 302		Philosophy and Literature
	CHM 115		Arts
	PHY 230		Mathematical Sciences (MTH 201)
	PHY 234 or 231		Social Behavioral Sciences (ECO 210 or 211)
	WRT 150 (or WRT 130)		Social Behavioral Sciences
	EGR 100		Historical Analysis (consider HSC 202)
	EGR 111		U.S. Diversity
	EGR 112 (or EGR 104+108)		Global Perspectives
	EGR 113		2 Supplemental Writing Skills Courses (prerequisite: WRT 130 or WRT 150)
	EGR 185		2 Issues Courses (prerequisite: must have 55+ credits)
	EGR 289		
	EGR 220+STA 220		
	EGR 214+215		
	EGR 226+227		
	EGR 209		
	EGR 309 + 310		
	EGR 250 + 251		

Secondary Admission Requirements:

Detailed application and admission requirements available at https://www.gvsu.edu/engineering/secondary-admission-to-engineering-majors-44.htm

- ✓ A GPA of 2.7 or above in Engineering Foundation courses. Foundation courses are designated by an asterisk (*) on this guide.
- ✓ Completion of each course in the Engineering Foundation with a grade of C (2.0) or above, with no more than one repeat.
- ✓ Completion of preparation for placement in the cooperative engineering education course, EGR 289.

Major Notes:

1) It is recommended that anyone on a 5 year EGR plan complete the EGR 104+108 stretch option in place of EGR 112. Please speak with an advisor if you have questions about which option is best for you.
2) An emphasis area is required for the Interdisciplinary Engineering major. Emphasis areas include: Data Science, Design & Innovation, Engineering Management, Environmental Engineering, Mechatronics and Renewable Energy.
    a. To declare this emphasis, login to MyBanner, select "Student Records" and then "Change Major."
    b. Click on "Change Major 1" and select ***Interdisciplinary Engineering – Renewable Energy Emphasis***.
    c. Click "Submit" and then "Change to New Program."
    d. EGR 224, EGR 330 and EGR 323 are prerequisite courses for selected upper-level electives. Students are required to take **four** IE Track electives. **Please plan ahead!** Course descriptions are listed in the GVSU Academic Catalog.
3) An ethics course is required in the engineering program. It is recommended to take **ONE** of the following:
    a. EGR 302 (Engineering Decision-Making in Society), BIO 328, BIO 338, COM 438, MGT 340, MGT 438, MKT 375, PHI 325 or PLS 338 in the Issues category
    b. PHI 102 in the Philosophy and Literature category
    c. For Honors College students, the ethics requirement is fulfilled by completion of the Honors Curriculum
4) Students must complete **EITHER** EGR 360 **OR** 362. A track elective should be taken in the other semester.

Electives	Credits	Title	Semester	Course Prerequisites	Energy Focus
EGR 352	4	Kinematics and Dynamics	Fall	EGR 312	Wind Turbine, Alternative Cars
EGR 405	3	Materials Failure Analysis	Summer	EGR 250/251	Wind Turbine, Alternative Cars
EGR 435	3	Mathematical Modeling of Physiologic Systems	Winter	MTH 302	All
EGR 450	4	Manufacturing Control Systems	Winter	EGR 345 or 346	Wind Turbine
EGR 465	4	Computational Fluid Dynamics	Winter	EGR 365	Wind Turbine